



CDC-Funded Environmental Public Health Tracking Projects

January 2003

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States:

California

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

The California Environmental Public Health Tracking Network (EPHTN) Program has six objectives. These are to:

- Involve stakeholders by convening a planning consortium (comprising technical experts from the U.S. Environmental Protection Agency, California Department of Health Services, California Environmental Protection Agency, University of California, local public health and environmental officials, community-based and non-governmental organizations, and environmental advocacy groups) that will facilitate effective planning, implementation, and evaluation of the proposed program.
- To identify and prioritize state and local needs for development of an EPHTN by assessing needs using survey questionnaires and phone interviews; assessing the feasibility of using Environmental Public Health Indicators and other indicators for surveillance; and identifying and prioritizing organizational, hardware, software, and informational needs.
- Enhance EPHTN capacity by assessing needs of current state and local EPHTN capacity, resources, skills, and assets, collaborating with the Centers for Excellence in developing, implementing, and evaluating training programs.
- Develop plans for a standards-based EPHTN, including testing protocols for data transfer and modeling; data refinement, augmentation, and linkage; security; dissemination and accessibility tools; and integration with other systems.
- Develop an outreach and education strategy for communicating information generated by EPHTN by assessing needs of stakeholders to determine the most effective forms and content for receiving EPHTN information and their current capacity to educate the public; developing, field testing, and evaluating communication strategies.

- Conduct a pilot project that will track asthma prevalence and adverse pregnancy outcomes and link these data to environmental hazard data on traffic exhaust exposure.

Connecticut

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of Connecticut, Department of Public Health (DPH), plans to develop a comprehensive plan that will lead to a coordinated and integrated environmental public health tracking network (EPHTN) that allows linkage and reporting of health effects data with human exposure data and environmental data. The Connecticut Department of Environmental Protection (DEP) will be an active partner in developing this program.

Within DPH, the Division of Environmental Epidemiology and Occupational Health (EEOH) will head for the program. EEOH comprises four program units: Toxic Hazards Assessment, Childhood Lead Poisoning Prevention & Surveillance, Asthma, and Occupational Health.

In order for DEP to achieve the goals of this project, a planning consortium will be assembled representing all facets of the community. The planning consortium will provide critical input to program staff to direct the planning process. A comprehensive inventory and assessment of existing surveillance systems will provide the planning consortium with the information base needed to develop methodologies to identify and prioritize tracking needs.

DEP and DPH already have several surveillance systems and databases that will be explored for linkage opportunities as part of the program. The planning process for development of an EPHTN will involve a more complete inventory and summary of each database listed in the proposal, as well as other databases and information streams expected to be discovered once the planning effort begins. The planning consortium will assist in the consideration and prioritization of certain databases to be incorporated in the tracking system.

Connecticut also proposes to:

- Assess staffing needs to determine the training and experience of current staff and identify gaps in training and existing experience.

- Identify all data elements for consistency with the National Electronic Disease Surveillance System, state standards and Geographic Information Systems (GIS) formatting and determine gaps in data systems and identify resources to obtain missing information.
- Evaluate existing state regulatory statutes and identify any legislative needs.
- Expand existing partnerships and build new ones to include representation from all facets of the community, i.e., Centers for Excellence in Public Health, the CDC, the U.S. Environmental Protection Agency, the U.S. Department of Housing and Urban Development, the Nuclear Regulatory Commission, and other agencies as deemed necessary to develop a comprehensive EPHTN.

Illinois

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Illinois proposes to establish an enhanced environmental public health tracking network (EPHTN) system to address the information gap in documenting possible links between environmental hazards and chronic diseases and to relate and report health effects data with environmental data.

The establishment of an enhanced EPHTN is a three-year project by the Illinois Department of Public Health (IDPH) in collaboration with other state agencies, organizations, and local communities. The goals are to assess needs, plan for staged development of a standards-based EPHTN, implement and evaluate a demonstration pilot project on data linkage and reporting, communicate and disseminate information, and collaborate with partners and stakeholders. To accomplish these goals, 24 specific and time-referenced objectives have been established. These include conducting inventory of existing surveillance and monitoring systems, describing the information infrastructure, reviewing and modifying statutes and regulations, identifying gaps in data collection and analyses, establishing partnership with stakeholders and key players, incorporating input from partners, collaborating with the Centers for Excellence, setting and incorporating standards, establishing communication and dissemination format and routines, and evaluating the performance of the tracking system and using the result to guide its further development.

IDPH is developing a NEDSS-based system for reporting infectious diseases using the Internet. The environmental hazards system would build on this model and lessons learned from this experience. In Illinois, five state agencies - IDPH, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Nuclear Safety (IDNS), the Illinois Department of Natural Resources (IDNR) and the Illinois Department of Agriculture (IDA) - collect data on environmental hazards. The Illinois Health and Hazardous Substances Registry, an outcomes registry, was created in 1984 with a robust capacity to include components of a cancer registry, a birth defects registry, and adult blood lead exposure registry. The current proposal would enable IDPH to add a hazardous toxic substance registry. Existing data systems are on various platforms (mainframe, server and personal computer) and use a variety of languages that were popular when the systems were created. Until a comprehensive inventory is completed, IDPH cannot recommend hardware and software for the new system, except that they will be compliant with the NEDSS model.

Collaborations within and across state agencies and other organizations are in place, including the IEPA. IDPH will provide both epidemiologic and environmental expertise and leadership to ensure project integration and compatibility within divisions of IDPH and across state agencies and organizations.

Maine

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Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Maine has the highest prevalence of asthma among U.S. adults. Seven of the state's most populous counties are considered non-attainment areas for the national ambient air standard for ozone. A survey of women of childbearing age in Maine indicates that 20% have hair mercury levels above those considered safe. Approximately half of the state's households obtain drinking water from domestic wells, and an estimated that 10% of these have elevated levels of arsenic, 5% have elevated levels of uranium 238, and 17% have elevated levels of radon. One third of homes have indoor air radon levels above 4 picoCuries/liter. In a colder climate, residents spend a proportionately greater amount of time in indoor air environments. Epidemics of carbon monoxide poisoning during winter storm power outages have been documented. These environmental health issues and others call out for an effective environmental health tracking systems to better assess actual exposures and their associated health hazards, as well as to monitor progress in reducing exposures. Maine has an extensive and unique set of environmental databases available for assessment and possible inclusion in a larger system.

Because of Maine's progress toward identifying and protecting healthy environments, the state is now ready to include environmental health data in a planned Maine Public Health Information System (MPHIS). Implementation efforts are proposed to link and integrate various public health data sets, including environmental health data sets, into MPHIS.

The Maine Bureau of Health (MBOH) proposes a three-year project to develop an environmental public health tracking and surveillance system. The requested funding will leverage existing efforts and resources from other entities within the state.

The primary goals of this project are to:

- Develop plans and components of a standards-based, coordinated, and integrated Environmental Public Health Tracking (Surveillance) System that allows linkage and reporting of health effects data with human exposure data and environmental hazard data.
- Increase environmental public health capacity at the local and state levels. Although the MPHIS may not be fully realized for several years, within the context of this agreement,

Maine will be able to develop model systems that link environmental health data and can be used by other states and localities for planning environmental public health actions on the basis of reliable, accessible data.

Among its existing resources, MPHS has ongoing surveillance activities through its cancer registry, an occupational disease registry, a childhood lead poisoning program, and a youth asthma surveillance system still in development. Additionally, MPHS has identified a list of potential environmental health indicators, relevant hazard, exposure, health effects, and behavioral surveillance databases, with years of data availability, and owners (state, federal agency) of the databases described. Within the Maine Bureau of Health, the Department of Environmental Protection, and in the private sector, a significant effort already exists to integrate data and to enhance electronic reporting. The proposed structure includes Web-based reporting, integration of numerous databases within a public health data warehouse, and data dissemination through a Web-accessible information system. Environmental health tracking has not previously been included in the MPHS due to lack of resources. MBOH plans a significant coordination of surveillance and integration within the state government, with federal agencies, and with the American Lung Association of Maine whose work on the Respiratory Health Indicators of Maine will be a major component of the environmental public health tracking system.

Maryland

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The Maryland Department of Health and Mental Hygiene (DHMH) is working through an Interagency Coordinating Group (ICG) to launch, coordinate, and oversee progress for the Maryland environmental health tracking initiative. The group comprises six staff members from the DHMH and the Maryland Department of the Environment and will plan action steps, set interim goals and deadlines, address problems and ensure the completion of tasks. In addition, the ICG ensure collaboration and stakeholder involvement. The DHMH proposes to use funds to:

- Enhance the state's capacity for biomonitoring by purchasing essential laboratory equipment and hiring an additional laboratory scientist.
- Inventory existing Maryland databases for environmental hazards, human, exposures, and health effects.
- Assess each database for its utility and potential for integration and linkage within an environmental public health tracking system.
- Engage and develop partnerships with stakeholders in the community, academia, and federal, state, and local government agencies in the planning and development of Maryland's environmental public health tracking system.
- Develop a planning consortium.
- Set initial priorities for the environmental health tracking system.
- Participate in national meetings and conference calls for the development of standards and best practices in environmental public health tracking.
- Assess statutory and regulatory authorities for, and barriers to, an environmental public health tracking system.

- Upgrade databases that do not comply with national standards, such as the National Electronic Disease Surveillance System.
- Train environmental, healthcare, and public health professionals.
- Develop a staged plan for an environmental public health tracking system in Maryland to include direct electronic data reporting and linkages within, between, and among hazard, exposure, and health effect databases.
- Examine environmental public health indicators in relation to the priorities set for Maryland.
- Continually evaluate and improve the developing environmental public health tracking system.

Massachusetts

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

The Massachusetts Department of Public Health, Bureau of Environmental Health Assessment (MDPH/BEHA), has been funded to conduct three pilot demonstration projects under this cooperative agreement:

- Pediatric asthma surveillance to be linked with a database on indoor air quality (IAQ) data in schools.
- Developmental disability surveillance to be linked with polychlorinated biphenyl compound (PCB) environmental exposures and with biomarkers from a newborn screening database.
- Systemic lupus erythematosus (SLE) surveillance to be linked with electronic environmental databases for specific pollutants of interest (e.g., petroleum distillates)

MDPH/BEHA has identified these three environmental public health tracking (surveillance) efforts as priorities in Massachusetts based on the following criteria: (1) they are already conducting some surveillance for each health outcome; (2) each health outcome involves different types of environmental exposure pathways; (3) tracking these health outcomes will address data gaps, as well as high levels of community concerns in the Commonwealth; (4) each pilot represents an opportunity to enhance existing infrastructure through uniquely different reporting/ascertainment methods; (5) each pilot is compatible with the program announcement requirements for electronic reporting; and (6) each health outcome is plausibly associated with environmental exposure opportunities to be linked.

The selected health effects, exposure, and hazard data selected for the pilot demonstration projects are consistent with those identified as priority areas in recent national forums (e.g., Pew Environmental Health Commission; CDC's environmental public health indicators). MDPH/BEHA proposes to build a database for these tracking (surveillance) efforts that will electronically communicate with the MDPH National Electronic Disease Surveillance System, enhancing electronic reporting to CDC and other partners under this program announcement.

For the pediatric asthma surveillance, MDPH/BEHA will expand an initial database containing school health records for six Merrimack Valley communities to include 186 of the state's communities. This equates to 1,390 public schools and 321 private and charter schools covering a total of 803,109 students. IAQ information is available for 130 schools. During Year 1, MDPH/BEHA will assess IAQ at an additional 40 schools that include grades K-8, with the goal of achieving statewide tracking of pediatric asthma and school IAQ by the end of year 3.

Data from the Massachusetts Department of Education will be used to ascertain developmental disabilities in children aged 3-10 years in the Housatonic River area of western Massachusetts. These data will be linked to thyroid hormone levels from newborn screening data and data on PCB contamination in the Housatonic River area. Annual prevalence rates of selected developmental disabilities and basic characteristics of the population will be obtained. The pilot project will include a component to evaluate and verify case ascertainment. Extensive environmental data exist for the Housatonic River area and document PCB contamination in soil, ambient air, groundwater, river sediment, and fish. The best and most feasible ways of linking these data with developmental disability data will be explored. Examples of linkage may be based on residence according to gradients of ambient air concentrations of PCBs or on residential proximity to the Housatonic River.

Electronic hospital discharge and billing databases have proven to be complete sources of initial case ascertainment for SLE in South Boston. An initial database of cases from the five teaching hospitals will be expanded to include other Boston hospitals. SLE cases will be confirmed through medical record reviews to confirm the presence of American College of Rheumatology criteria for SLE. Linkage of the identified case information will be to electronic environmental database(s) with the goal of linkage to suspected environmental etiologies including petroleum distillates, silica dust, and organic solvents. During years 2 and 3, tracking efforts can be expanded beyond Boston based on the pilot demonstration results.

In addition to the pilot projects, MDPH/BEHA will

- Enhance electronic reporting capabilities for sharing data across tracking systems, within confidentiality and security restrictions.
- Standardize reporting of target health outcomes and develop standard data systems for sharing information.
- Increase the number of partnerships with medical community and academic institutions for health outcomes targeted for the pilot projects.
- Verify validity and completeness of data sources for developmental disability outcomes of interest.
- Conduct file searches to evaluate quality of readily available information from electronic Massachusetts Department of Environmental Protection-regulated facility and site databases for linking with SLE cases.

Missouri

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Missouri proposes to initiate electronic reporting of laboratory results for blood lead levels, document environmental assessments and abatement activities, and create linkages with Department of Natural Resources lead smelter and mining site databases and with other surveillance databases.

The Missouri Department of Health and Senior Services (DHSS) Office of Information Systems (OIS) is developing the Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC), which is DHSS' effort to create one integrated public health information system to document and address information of interest to public health in Missouri. The surveillance component of MOHSAIC is the Missouri Health Surveillance Information System (MOHSIS). MOHSIS is a transactional application that provides a centralized and integrated database for the entry, update, and retrieval of surveillance information about reportable conditions required under 19 CSR 20-20.020 or of interest to public health. This centralization and integration provides a flexible system capable of modification for changes to case definitions, reportable diseases, local public health agency needs, and other significant issues of public health concern.

The Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) application is now used by DHSS and a few local public health agencies to document lead screening activities. These stand-alone systems require redundant data entry of client information and do not reflect statewide lead surveillance activities or status. Although a few laboratories report electronic blood lead level results to DHSS, these results must be manually keyed into STELLAR. DHSS is working to migrate all data from STELLAR into MOHSAIC, including screening data, case management activities, and electronic laboratory reporting.

DHSS will use funds from this project to initiate electronic reporting and posting of laboratory results for blood lead levels, develop and implement electronic notification of system users of posted results for their clients, document environmental assessments, document lead abatement activities, and create electronic linkages to Department of Natural Resource's (DNR) lead smelters and lead mining

sites databases. Part of the project involves capturing detailed data on the assessment of the environment and abatement activities. Once completed, this infrastructure will allow the linkage of other stand-alone surveillance databases with MOHSAIC. These include information about other heavy metals, private drinking-water well results, and other required environmental conditions, cancer and birth defects registries and asthma.

DHSS will use information obtained from stakeholders and consortium meetings, community environmental public health assessments, and needs assessments associated with a CDC biomonitoring grant to determine an additional data integration project to conduct during the project period. This will be conducted after the lead integration project is completed and evaluated.

DHSS also proposes to collaborate on standardization needs with other Environmental Public Health Tracking Network partners, and to collaborate with the Centers for Excellence for Environmental in Public Health Tracking on epidemiology studies.

Montana

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Montana plans to establish the Montana Environmental Public Health Surveillance System (EPHSS) Program. First-year objectives and activities of this project are planning, capacity building, and assessment. In the initial phase, Montana intends to address priority issues that affect the state. One of the priorities identified is the incidence of asthma. Using the new EPHSS, Montana will work to reduce asthma by linking data among existing databases and surveillance systems as well as implementing new systems. Montana will improve the partnerships among agencies and constituency groups to establish a broad-based planning consortium. Montana will develop, where necessary, and enhance health effect, exposure, and hazard surveillance systems that can be integrated into a statewide and national environmental public health tracking network (EPHTN).

The initial goal of the Montana EPHSS Program is to establish epidemiologic and program capacity for an EPHSS within Montana. This will allow the Montana EPHSS Program to collaborate with CDC, other state and federal partners, and the Centers for Excellence toward a statewide and national environmental public health tracking network. These activities are intended to facilitate a transformation from reactive health effect-, exposure-, and hazard-specific surveillance systems, to an integrated and standardized tracking (surveillance) network.

To accomplish these goals, Montana is

- Completing a preliminary inventory of its databases that address hazards, exposures, and chronic diseases
- Establishing criteria to identify priority conditions for inclusion in an environmental public health surveillance system program
- Soliciting input from citizens at public forums in the state

- Completing a report that includes recommendations in three scientific and policy areas, including (1) standardizing databases addressing health effects, exposures, and hazards; (2) improving environmental epidemiology and program capacity within the Department of Public Health and Human Services (DPHHS); and (3) enhancing surveillance capacity to address priority health conditions in Montana.

Montana brings many strengths to the development of EPHSS Program, including (1) a well established partnership between the Montana DPHHS and the Department of Environmental Quality; (2) ongoing collaborations among MDPHHS and Montana universities; (3) strong experience in addressing site-specific environmental health problems; (4) effective collaborations between MDPHHS and federal entities such as the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency; and (5) an engaged and concerned population.

Nevada

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Using lessons learned from the joint investigation between Nevada, CDC, and the Agency for Toxic Substances and Disease Registry (ATSDR) of the Churchill County, Nevada, childhood leukemia cluster, Nevada's project will build upon the strengths of a Coordinating Technical Leadership Team comprising dedicated staff from the divisions of Health and Environmental Protection, Department of Agriculture, Department of Information Technology, and the Nevada Indian Commission. The technical team will serve as partners and consultants to a Nevada EPHTS Planning Consortium comprised of representatives from tribes, hospitals, public health agencies, environmental agencies, rural agriculture support agencies, community members, and regulatory bodies such as the State Board of Health and the State Environmental Commission.

Nevada's Environmental Public Health Tracking System (EPHTS) project has four major goals:

- Identify and increase the public health and environmental exposure prevention, surveillance, and reporting infrastructure capacities at the state, local, and tribal levels
- Improve understanding of policy makers, community leaders, tribal leaders, and citizens about the relations between exposure to environmental hazards and health effects such as asthma, cancer, and lead and arsenic poisoning
- Facilitate the integration of an environmental public health surveillance system with Nevada's National Electronic Disease Surveillance System (NEDSS), the federal Environmental Protection Agency's National Environmental Information Exchange Network, and a surveillance system being established under the Health Resources and Services Administration's hospital bioterrorism preparedness initiative and
- Create a state of "readiness" and partnership among stakeholders and their constituents so that these planning activities will lead to a funded implementation stage that we envisage as the logical next step to the EPHTS program.

Routine, continuous public health surveillance efforts in Nevada focus on communicable diseases, cancer, birth defects (including inborn errors of metabolism), and newborn hearing screening. Beginning in Year 1, a comprehensive inventory of environmental hazards, chemical (including agricultural chemicals) inventories, and non-infectious disease surveillance systems maintained by state and local governmental agencies will be developed. Systems maintained by local chapters of non-profit organizations such as the American Lung Association and the March of Dimes will also be included in this inventory process. The needs and concerns of all stakeholders and data users including governmental agencies, nongovernmental organizations, health care providers, academic institutions, businesses that use hazardous materials, and concerned citizens will be identified and prioritized. Also, a statewide public awareness campaign to educate the public, policy makers, and opinion leaders about the relationship between human exposure to environmental hazards and chronic diseases will be developed and implemented in Year 1. A community-based, stakeholder planning process will be used to create a plan for staged development of a standards-based EPHTS that allows direct electronic data reporting and linkage within and across health effect, exposure, and hazard data and that is accessible to local, state, and national public health and environmental protection agencies.

Additionally, Nevada proposes to establish a partnership with a local community to implement the Protocol for Assessing Community Excellence in Environmental Health as a strategy to promote community readiness. This also will provide a real-time evaluative tool against which to compare the developed surveillance system's ability to appropriately identify, classify, report, track, and respond to incidents of human exposure to environmental public health hazards.

New Hampshire

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of New Hampshire (NH) proposes a collaborative effort between the NH Department of Health and Human Services' Office of Community and Public Health (OCPH) and the NH Department of Environmental Services (DES) to map, build, and use a new system of environmental public health tracking (EPHT). New Hampshire's commitment to cooperative efforts is evidenced in numerous projects including a mercury-in-fish advisory, hazardous waste cleanup, indoor air quality, sludge, water fluoridation, and air quality alert days.

The primary components of the EPHT system include an office staffed with data linkage professionals, a planning consortium of experts and stakeholders, and training tools to assist state and local surveillance staff. The EPHT system will be a standards-based process built upon staged improvement of data linkages that allow direct electronic data reporting across the following three areas: 1) human health effects (disease), 2) exposure, and 3) environmental hazard data. The EPHT network will be based on a public health tracking logic model of progress and feedback that links health effects to disease prevention and health promotion activities. The project plans to develop strategies for communicating information generated by the system to a diverse audience in collaboration with the nearest Centers for Disease Control and Prevention Center of Excellence in EPHT.

New Mexico

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of New Mexico proposes to increase its environmental public health capacity by developing the components of a statewide environmental public health tracking system (EPHTS) that is (1) capable of linking health effects data with human exposure and environmental hazards data and (2) standards-based and capable of integration with data from other states and other national data sets. The components of the EPHTS are to be developed by enhancing, standardizing, and ultimately linking data sources from local, state, federal, and tribal government agencies and academic institutions. New Mexico's goals, objectives, and activities, include

- Conducting an inventory of current and potential datasets, and evaluating existing data sets based on CDC guidelines for surveillance evaluation
- Developing and maintaining partnerships with appropriate agencies and community groups
- Building an infrastructure to support a statewide EPHTS by providing the resources to build capacity and address the needs identified above, as well as developing and implementing a plan to enhance, standardize, link and integrate existing surveillance systems
- Developing a plan for using the enhanced linked environmental data to allow informed decision making on the national, state, and local levels by creating strategies for data dissemination, and addressing potential obstacles to such dissemination

New Mexico will collaborate with several agencies that have committed their support. They include the New Mexico Environmental Department, Indian Health Service, City of Albuquerque Environmental Health Department, and Bernalillo County Environmental Health Department.

New York

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Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

New York State proposes to develop plans to evaluate the feasibility and usefulness of linking and reporting of health effects data with human exposure data and environmental hazard data. Required program activities include: developing partnerships with individuals and organizations who are important to the development and implementation of an environmental public health tracking network (EPHTN); establishing a planning consortium; examining current legislation and regulations regarding collection, integration, and sharing of data; and developing and providing training to state and local staff in a variety of areas related to environmental public health tracking.

The first programmatic goal is to enhance the state's capability to track children's environmental health, specifically to assess the relation between air pollution and pregnancy outcomes, asthma development, and childhood mortality. As part of this project, the grantee will link New York State Department of Health's Integrated Child Health Information System (ICHIS) with New York State Department of Environmental Conservation's air monitoring system. The project will be evaluated, and its results will be used to guide decisions about what other hazard or exposure databases should be linked to ICHIS or how this database can be used to assess other health endpoints potentially related to environmental contamination. These lessons will be extended to guide or modify a plan for establishing an EPHTN.

The second and third programmatic goals are to enhance the state's capability for tracking exposures to contaminants in drinking water and to enhance our capability to track neurologic conditions, autoimmune diseases, developmental disabilities, diabetes, and chronic diseases other than reproductive outcomes, cancer, and asthma. These two areas need additional development before the grantee can readily track and link these data.

New York State will prioritize state and local needs for tracking health effects, exposures, and hazards with the goal of incorporating them into an EPHTN. This will be done in conjunction with partners and a planning consortium. State and local legislation and regulations will be reviewed to determine whether additional authority is needed to integrate, share, or collect new data.

New York proposes to develop strategies for communicating information generated by the EPHTN network with the public, local, and federal governments, tribal governments, healthcare providers, non-governmental organizations, and other for-profit and nonprofit groups in a timely manner for use in public health practice or environmental protection programs. New York also will work with the Centers for Excellence in for EPHT to (1) develop training tools and deliver training in surveillance practices, environmental assessment, biomonitoring, evaluation, and risk communication to state and local staff and (2) evaluate environmental public health indicators.

Oregon

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Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Oregon aims to increase environmental public health capacity at the state and local levels and increase awareness of environmental health issues; build a diverse and effective planning consortium to prioritize environmental health needs and concerns and collaboratively develop standard indicators to measure hazards, exposures, and health outcomes; identify data, monitoring, and tracking systems, and develop or enhance tracking systems for priority indicators; and create an implementation plan and test the system for electronically linking data. The environmental public health tracking (EPHT) cooperative agreement will provide Oregon with the funds to leverage its existing environmental health infrastructure to link hazard, exposure, and health outcome data. The state is integrating activities for several of its current surveillance systems (blood lead levels, asthma surveillance, and pesticide illness surveillance). Also, the National Electronic Disease Surveillance System (NEDSS) Team has integrated some of Oregon's health-related data systems into a data warehouse called Outcome Assessment through Systems of Integrated Surveillance (OASIS). OASIS includes data from vital statistics, AIDS, hospital discharge, sexually transmitted diseases (STDs), tuberculosis (TB), Youth Risk Behavior Surveys (YRBS), Behavioral Risk Factor Surveillance System (BRFSS) and the Pregnancy Risk Assessment Monitoring System (PRAMS).

EPHT program staff will assess the existing environmental public health capacity and needs of local health departments. Oregon also will review the training capacity for environmental public health at academic institutions (including the nearest Center of Excellence in Environmental Public Health Training), and professional organizations. It will create and distribute a comprehensive list of training resources, and develop a statewide environmental public health training improvement plan.

Proposed collaboration and data sharing with Washington State's health department on electronic lab reporting and biomonitoring projects are being considered. This collaboration and data sharing will improve surveillance in both states, especially because citizens cross borders for health care.

Building on a wide range of existing partnerships, Oregon will recruit leaders and key stakeholders from environmental and public health entities; diverse ethnic, cultural, and geographic groups; tribal governments; advocacy organizations; and academic institutions to create a formal EPHT Planning Consortium. The consortium will use elements from the Protocol for Assessing Community Excellence in Environmental Health to identify and prioritize the environmental health concerns and

needs in the state. EPHT staff will work with the consortium to develop strategies to ensure that data and information about the process and outcomes of the program are accessible and culturally appropriate. The expected benefits and lessons learned from the EPHT inventory will be widely disseminated to increase awareness of environmental health issues and state priorities.

EPHT staff will collaborate with other participating states and the CDC on setting data standards for a national tracking network. EPHT will work with the nearest Center of Excellence to assess and incorporate relevant environmental public health indicators into the Oregon EPHT implementation plan.

The Environmental and Occupational Epidemiology Section will strengthen and formalize its collaboration with the Department of Environmental Quality. Representatives of these agencies and other partner organizations will form a technical team to develop appropriate architecture standards and data structures for EPHT to integrate data from various sources, while maintaining data security and confidentiality.

With the consortium, EPHT will develop, implement, and test data linkages in the EPHT system. Oregon will support partners for pilot data integration projects addressing priority indicators, and use the results to refine the implementation plan. Finally, Oregon will develop and carry out a comprehensive evaluation of the EPHT process and outcomes and widely disseminate the findings to inform partners and other state programs. Experiences of other states also will be incorporated into the final implementation plan for EPHT in Oregon.

Pennsylvania

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Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Pennsylvania Department of Health (PADOH) will partner with the Pennsylvania Department of Environmental Protection (PADEP) to implement this program. This grant allows PADEP and PADOH to collaborate on environmental problems that emerge throughout the state and develop a coordinated and integrated environmental public health tracking (surveillance) network (EPHTN) that will include both environmental databases developed and maintained by PADEP as well as environmental health outcome databases developed and maintained by PADOH.

PADOH recognizes that multiple, coordinated elements are necessary for an effective EPHTN. These include the following initiatives to

- Collaborate and forge partnerships between traditional health-focused entities (for-profit and non-profit) and environmental monitoring agencies at the federal, state, and local levels
- Expand capacity in the area of personnel expertise and latest technology infrastructure
- Develop standardized electronic data elements
- Build mechanisms for disseminating information to stakeholders.

This program will build on the existing resources, such as the Bureau of Epidemiology (BOE), which has primary responsibility for the EPHTN in PADOH. Two BOE divisions, the Division of Environmental Health Epidemiology (DEHE) and the Division of Community Epidemiology (DCE), will coordinate and lead this project. Their combined responsibilities include public health assessments, environmental health investigations, toxic management, health advisories, environmental health surveillance, responses to concerns about hazards and health effects, and investigation and study of chronic diseases, injury, and family health issues. Examples of such efforts include Three-Mile Island, Palmerton Zinc studies, and Chester County Mushroom Farm.

PADOH intends to enter into a collaborative relationship with the U.S. Environmental Protection Agency to link into the Toxic Release Inventory (TRI) database to obtain state-specific TRI data on a real-time basis.

Additional commitments outlined by PADOH are

- Establish a planning consortium of technical experts, community leaders, and other key stakeholders
- Further examine state legislation and regulations to determine whether additional authority or resources are required to collect new data, integrate data, and share data
- Develop and evaluate strategies for communicating information generated by an EPHTN and related program activities to diverse audiences
- In collaboration with the Centers for Excellence in Environmental Health Tracking, examine the feasibility of environmental public health indicators and develop training tools and provide training to state and local staff on topics related to environmental health tracking
- In collaboration with Environmental Public Health Tracking program partners and stakeholders, develop standardized data definitions; examine the availability and applicability of data standards and data exchange messages; and discuss project accomplishments, barriers, and lessons learned through a variety of communication media.

Utah

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The Utah Department of Health (UDOH) proposes to develop, in collaboration with the Utah Department of Environmental Quality (UDEQ) and CDC, plans for, and components of a statewide standards-based, coordinated, and integrated environmental public health tracking network (EPHTN) that allows linkage and reporting of health effects data with human exposure data and environmental hazard data. This EPHTN will be designed to inform consumers, communities, public health practitioners, researchers, and policy makers about chronic diseases and related environmental hazards and population exposures. This will provide UDOH and UDEQ with the capacity to better understand, respond to, and prevent chronic disease in Utah. Information generated by this program will enable UDOH and UDEQ to identify populations at high risk in Utah, examine health concerns at the local level, recognize related environmental factors, and establish prevention strategies statewide.

Utah has a series of assets that will more efficiently be used through an EPHTN. These include

- Statewide hospital and emergency department discharge databases
- Experience with establishing syndromic surveillance using electronic transmission of health care encounter records during the 2002 Olympic Winter Games
- A well established statewide Surveillance, Epidemiology and End Results (SEER) cancer registry
- The Utah Birth Defect Network
- The Resource for Genetic and Epidemiologic Research and Utah Population Database, which have brought cancer registry and birth and death certificate data together with Utah's unique genealogic data to support epidemiologic research
- The University of Utah's Department of Medical Informatics

- An innovative Web-based system for disseminating public health information within a context that improves understanding of the information.

The EPHTN will aid Utah in developing its capacity to conduct surveillance for health effects by leveraging the benefits of electronically linking the systems mentioned above. Utah also is currently participating in important categorical environmental activities that would benefit from the establishment of an EPHTN. These include

- The Hazardous Substances Emergency Events Surveillance system, which is funded by the Agency for Toxic Substances and Disease Registry and collects and analyzes information about releases of hazardous substances
- UDEQ, which is one of 13 states funded under the National Environmental Information Exchange Grant Program to develop the National Environmental Information Exchange Network. Grantee will build on and integrate these efforts to produce an advanced tracking system that can support the goals of the EPHTN.

Washington

Grantee: Washington State Department of Health

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Washington State proposes to develop a blueprint for environmental public health tracking, enhance existing exposure and health effects surveillance systems, and conduct projects aimed at demonstrating data linkage to show the value of electronic reporting and the utility of linked data for policy. Washington's primary project involves the enhancement of the Washington Electronic Disease Surveillance System's (WEDSS) electronic hospital reporting of birth defects, the development of population-based exposure data (including a states-focused Health and Nutrition Examinations Surveys biomonitoring program), the enhancement of environmental monitoring and data analyses of persistent toxins such as mercury and PCBs. The data linkage demonstration project plans to create ecologic links based on proximity and explores individual-level methods of linkage. These three functions - electronic disease surveillance, enhanced exposure tracking, and linkage to environmental monitoring - are the major elements of the Washington Environmental Public Health Tracking Network (WEPHTN).

In addition, Washington plans to expand electronic hospital reporting to include pesticide illnesses (hospitalization and emergency department (ED) case data), and establish electronic reporting of pesticide-exposure cases by the poison control center to the Department of Health. Probabilistic record linkage methods will be used to connect individual exposure data to individual health outcome data. Finally, WEPHTN will bring together partners from the state education system and the local school districts to develop a prototype data system for school-based environmental monitoring and illness surveillance.

The project will expand the development of WEDSS infrastructure to better meet the needs of the WEPHTN. These efforts will focus on task automation, development of the integrated data repository, improvements to the alert system, and enhancement and expansion of electronic reporting. The specific improvements to electronic reporting will include

- Improvement of electronic laboratory reporting of lead exposure blood-test results
- Enhancement of electronic hospital reporting, including cases of work-related asthma

- Enhancement of electronic hospital reporting and electronic laboratory reporting, including cancer
- Establishment of electronic reporting of pesticide illness cases by Labor and Industries Workers' Compensation databases to DOH Pesticide Incident Monitoring System
- Development of electronic laboratory reporting of private laboratory pesticide exposure test results.

These efforts will be complemented by coordination with the Washington State Department of Ecology and the development of metadata for linkage with the Washington Environmental Information Exchange node.

Washington's proposal also includes plans for continued partnerships with stakeholders, the development of collaborative relationships with a range of new partners, and the establishment of a planning consortium.

Finally, Washington will

- Develop training tools and train staff and partners
- Evaluate the program
- Develop communication and data dissemination strategies
- Examine the feasibility of selected environmental public health indicators
- Collaborate on epidemiologic studies
- Participate in CDC-sponsored discussions and workgroups.

Wisconsin

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

The Wisconsin Environmental Public Health Tracking Collaborative (WEPHTC) will streamline and centralize access to existing environmental, agricultural, and health data systems specific to Wisconsin creating a user-friendly Wisconsin Environmental Public Health Tracking System. Its foundation is the already close working relationships between the Wisconsin Department of Health and Family Services (DHFS), the Wisconsin Department of Natural Resources (DNR), and the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP). These agencies have established relationships with local health departments, the University of Wisconsin, and the State Laboratory of Hygiene.

The WEPHTC has the following goals

- Establish a comprehensive, Web-based environmental public health tracking system that integrates environmental and health information
- Build a tracking system based on national data standards and case definitions
- Facilitate use of the tracking system to address community and individual concerns as well as priority research questions identified by the Centers for Excellence.

Two pilot projects will be initiated in Year 1 of the project: the childhood cancer follow-back, and a pilot for three environmental indicators (carbon monoxide poisoning, methyl mercury exposure, and pesticide poisonings). For the childhood cancer follow-back project, information from the state tumor registry will be linked with environmental data, including, at a minimum, drinking water quality, ambient air quality, residential and regional pesticide use, traffic density near the home, and radiation exposures such as radon, x-ray, and electro-magnetic fields. An automated reporting system that will facilitate reporting by coroners, healthcare providers, local public health agencies, poison centers, and clinical laboratories will be developed for carbon monoxide and pesticide poisoning surveillance efforts. Additionally, a laboratory-based surveillance system for methyl mercury that will focus on adult males aged ≥ 40 years will be developed. Hair samples from the males will be accompanied by a diet survey so that hair mercury levels can be compared with fish intake levels. These pilot projects

will demonstrate the feasibility of linked environmental health data systems deployed on Wisconsin's Health Alert Network.

At the completion of Year 2 of the project, the WEPHTC will prepare an annual tracking report based on statistical analyses of the surveillance data, including categorizing cases by age, sex, rural or urban location, environmental exposure data, and other variables. County or regional incident rates will be calculated. Standardized reports will be developed and implemented in SAS Internet, which will allow automated report generation and statistical display from the live surveillance database.

Cities:

Houston, Texas

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The Houston Department of Health and Human Services (HDHHS) proposes to develop a local environmental public health tracking system that builds on existing local data systems and integrates with the Texas Department of Health's chronic disease, injury, and birth defects surveillance systems; the Texas Natural Resource Conservation Commission's monitoring data; and the U.S. Environmental Protection Agency's tier two data to provide a local response, surveillance, and research resource to mitigate the effects of environmental exposures on the health of Houstonians.

HDHHS has prioritized the upgrading of the department's computer infrastructure to allow continued progress toward an integrated surveillance network with an Internet-based reporting graphic user interface for local providers and reporters. HDHHS has the resources to develop a secure, encrypted, Web site for all Houston Medical System Response participants. This will be the vehicle used for integrating access to information, as well as for reporting by local providers of medical care and first responders during environmental exposure incidents. Existing surveillance and monitoring systems that may be integrated include (1) blood lead surveillance, (2) heat-related mortality, (3) cancer registry, (4) birth defects registry, (5) injury data project, (6) drowning, (7) vital statistics, (8) child fatality reviews, (9) air monitoring, (10) food establishment inspections, (11) hazardous materials incidents, (12) chemical facility and storage data, and (13) city business and housing geographic information.

New York City, NY

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The New York City Department of Health and Mental Hygiene (NYC DOHMH) plans to assess, evaluate and enhance current health effect, exposure, and hazard surveillance systems in New York City. Its program, *Environmental Connections*, will build on the existing environmental public health tracking systems of the DOHMH and its sister agencies: The NYC departments of Environmental Protection (NYC DEP) and Housing Preservation and Development (NYC HPD) and the New York State departments of Health (NYS DOH) and Environmental Conservation (NYS DEC). New York City will also work with partners from local academic institutions, community-based organizations, private sector employers, unions, and federal agencies.

The NYC DOHMH has long recognized the need for environmental health tracking, and has developed individual surveillance programs for many environmental health issues, including childhood lead poisoning and asthma. However, two recent events highlighted a need to continue to fill gaps in its existing environmental public health infrastructure: the attack on the World Trade Center and the emergence of West Nile virus in New York City.

The objectives of *Environmental Connections* are to

- Formalize existing working relationships between DOHMH and DEP
- Evaluate current data systems for air, food, water, pesticide use, and the indoor environment as they relate to existing health-related data systems in NYC
- Establish an inventory of tracking systems
- Convene a planning consortium of local data-using stakeholders
- Assess needs for environmental public health in NYC
- Offer technical training in surveillance and tracking to DOHMH and sister agency staff

- Prioritize areas of focus for environmental public health in NYC
- Assess the need for changes to current regulations and legislation to facilitate environmental health tracking
- Develop the plans for and components of a local standards-based integrated environmental public health tracking system
- Participate in the development of a national plan.

Washington, D.C.

Grantee: District of Columbia Department of Health

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The District of Columbia Department of Health (DOH) will develop information systems within DOH, specifically systems containing environmental data on human exposures and hazards; those capturing data on health effects will be used to build an environmental public health tracking system. Project goals include (1) further documenting the relation between environmental exposure and health effects; (2) gaining greater ability to undertake health assessment, policy development and assurance; and (3) generating information that guides policy development and decision making on prevention and treatment activities, as well as resource allocation. Minimal integration exists between DOH environmental and public health databases. Activities to be completed include (1) developing data standards; (2) adopting and incorporating technology platforms that facilitate data integration and sharing; (3) creating synergy of effort in data collection and analysis; and (4) enhancing prevention, intervention and service programs. Internal linkages and partnerships include DOH Environmental Health Administration, the State Center for Health Statistics Administration, DOH Preventive Health Services Administration, the Maternal and Family Health Administration, the Public Health Laboratory, and the Medical Assistance Administration. These stakeholders maintain surveillance and database systems covering asthma, birth defects, cancer, diabetes, and heart disease. The DOH Environmental Health Administration is responsible for meeting all U.S. Environmental Protection Agency requirements for measurement of environmental hazards in the air, water, and soil, while the State Center for Health Statistics Administration oversees vital records and information technology infrastructure development in the DOH.

Centers of Excellence:

John Hopkins University

Grantee: Johns Hopkins University, Bloomberg School of Public Health

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Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program,
Centers for Excellence in Environmental Public Health Tracking

Program Description:

The proposed Center of Excellence in Environmental Health Tracking will build on the longstanding efforts of the Johns Hopkins School of Public Health (JHSPH) to strengthen the national environmental health infrastructure. The goals of the Center are to strengthen the environmental health workforce through training and education, provide technical assistance and research support for the development of the Environmental Public Health Tracking Network (EPHTN), and conduct research to investigate links between the environment and health effects. The Center will bring together faculty leadership from across Johns Hopkins institutions, allowing flexibility to meet partner and project needs and integrating the methods of medicine, epidemiology, biostatistics, environmental science, risk assessment and communication, and health informatics. The efforts of the Center will be shaped by partnerships with participating state and local agencies, national health and environmental organizations, and CDC. A Center strategic plan will be developed with partners, including an assessment of needs and priorities for training, technical support, methods development, communication, and tracking research.

JHSPH will work to strengthen workforce capacity through flexible multi-disciplinary training and technical assistance. The Center will provide training through multiple venues, including seminars, short courses, and distance learning. Courses will be offered in methods and applications of public health surveillance and risk communication. The Center will support graduate fellows and develop a certificate program in health surveillance, including courses in epidemiology, risk assessment, biostatistics, exposure assessment and biomonitoring, environmental assessment, and evaluation. JHSPH will provide its partners with broad technical assistance, including the definition and selection of indicators, analysis of health and environmental data, development of statistical methods, and the characterization and communication of public health risks.

The Center will conduct research to support the EPHTN, examining selected indicators and developing approaches for statistical, temporal, and geographic analysis, and characterizing and communicating risks and public health implications. In addition, JHSPH will conduct an epidemiologic investigation of environmental exposures and a selected health effect, which will be developed in collaboration with partners to address public health priorities and interests. To evaluate Center activities and progress on building the EPHTN, JHSPH will develop baseline and final evaluations of the state of environmental public health tracking.

Tulane University

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Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program,
Centers for Excellence in Environmental Public Health Tracking

Program Description:

The goals of the Tulane Center are to provide expertise and support to state and local health agencies to develop the national Environmental Public Health Tracking Network (EPHTN), and to investigate potential links between health effects and the environment. This proposal uses a practical approach to conduct the research needed to provide practitioners with the methods and skills to implement an EPHTN in their states, then to partner with states to research answer to community environmental concerns. The research focus is conceptualized to include three areas:

- Research and development of the EPHTN including a technical framework for a distributed data network that provides access to data, characterization and standardization of data, and development of algorithms for linking data and analyzing trends
- Research using hazard, exposure, and health outcome databases to describe links between environment and health, including hierarchal data analysis and ecologic and analytic epidemiological studies
- Development and evaluation of communication strategies to disseminate information, and training modules to enhance skills of practitioners who implement the tracking system.

This comprehensive approach has the potential to provide information to prevent disease, enhance decision-making, inform the public, and contribute to the knowledge of the health effects of environmental agents. Specifically, Tulane proposes to

- Develop an Internet interface for databases on water quality, asthma, and blood lead that can be refined for use with other data sources

- Describe existing hazard, exposure, and health effect data systems and determine their utility for public health tracking
- Develop statistical methods for geographic information systems and trend analysis using existing and innovative data sources
- Design a mercury exposure monitoring strategy
- Assess factors necessary to link data from ambient air monitoring, passive dosimetry for volatile organic compounds, biomarkers of metal and pesticide exposure, and multiple disease rates in a study of populations living near petrochemical refineries
- Develop and evaluate strategies to communicate information from the previous study to the affected community
- Conduct an epidemiologic study on the relationship between chronic lead exposure and adverse cognitive and neurobehavioral effects
- Design and evaluate training modules in environmental assessment and risk communication

University of California, Berkeley

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Funded Since: September 30, 2002
Funded Program: Centers of Excellence for Environmental Public Health Tracking

Program Description:

The School of Public Health at the University of California Berkeley (UCB) is establishing a Center of Excellence in Environmental Public Health Tracking in collaboration with the UCLA School of Public Health. The Center focuses on five key components:

- An environmental epidemiologic component relevant to environmental health tracking will be conducted using California data to study associations between criteria air pollutants and asthma exacerbation
- Information from two ongoing UCB projects, the Fresno Asthmatic Children's Environment Study on relations between air pollution and asthma exacerbation in children in Fresno, California, and a CDC-funded pilot project to track asthma among students in Oakland public schools, will be used to assist health departments in the design of environmental health tracking systems for asthma (designated the top priority health outcome for tracking in the states surveyed by the Pew Environmental Health Commission)
- Methods will be developed to link environmental concentrations and body burdens of environmental contaminants. Building on substantial existing modeling efforts, this work will emphasize approaches that can be applied in a variety of settings and produce results that can inform public health and environmental policy and practice
- Methods will be developed for environmental health tracking using California and national data sets. This component will incorporate targeted technical review, peer review, community consultations, and data analysis. It will rely on a framework that includes four steps: identify key measurements or indicators, identify data sources available to estimate these elements, develop and implement approaches to analyzing data, and report results. This framework examines five areas: releases or sources of agents, ambient or media-based concentrations of agents, human exposures or body burdens, disease outcomes likely to be associated with exposures, and interventions. The topics of particular interest are air pollution and contaminants in food and drinking water and their associated health effects, but the approach can be applied to any topic area

- Communication and training materials will be developed in Years 2 and 3 for health departments, policy makers, community organizations, and other stakeholders.